

Cédric G. Fichot

CURRICULUM VITAE

Postdoctoral Scholar and Delta Science Fellow
US citizen / French citizen

Jet Propulsion Laboratory
Earth Science: Oceans and Ice
California Institute of Technology
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EDUCATION

Doctor of Philosophy, *Marine Science* (May 2013)
University of South Carolina
Dissertation: *Transformations and fates of terrigenous dissolved organic matter in ocean margins*
Advisor: Dr. Ronald Benner
Marine biogeochemistry and photochemistry, remote sensing, ocean optics, chemical oceanography.

Master of Science, *Oceanography* (October 2004)
Dalhousie University
Thesis: *Marine photochemistry from space*
Advisor: Dr. William L. Miller
Marine photochemistry, ocean optics, remote sensing.

Bachelor of Science, *Oceanography* (May 2000)
Florida Institute of Technology

Fluency in English & French. Basic knowledge of Spanish and German.

EMPLOYMENT

Caltech Postdoctoral Scholar and Delta Science Fellow (January 2014 - Present)
Earth Science Division, Jet Propulsion Laboratory, California Institute of Technology

Postdoctoral Research Associate (June 2013 to December 2013)
University of South Carolina, Department of Biological Sciences

Teaching Assistant (January 2008 to December 2008)
University of South Carolina, Marine Sciences Program

Research Professional and Laboratory Coordinator (January 2005 to December 2007)
University of Georgia, Department of Marine Sciences

HONORS and AWARDS

2015 Outstanding Postdoctoral Research Award (2015). Jet Propulsion Laboratory, California Institute of Technology

2013 Delta Science Fellowship (2014-2016). \$169,376. California SeaGrant

USC 2013 Outstanding Dissertation Award (2013). \$1,000. The Graduate School. University of South Carolina.

Dean's Dissertation Fellowship (2012-2013). \$25,000. College of Arts and Sciences. University of South Carolina.

NASA Group Achievement Award (2012). ICESCAPE project.

Dissertations in Chemical Oceanography (DISCO) Symposium invitation (2012). Hawaii.

Graduate Student Day, 1st-place (2012). Oral presentations. University of South Carolina.

Travel award (2012, 2013). Graduate School, University of South Carolina.

Travel award (2010, 2011, 2012, 2013). Marine Science Program, University of South Carolina.

Travel award (2010). The Oceanography Society. Ocean Optics XX Meeting. Anchorage, AK.

Outstanding teaching award (2009). Marine Science Program, University of South Carolina.

Best student paper award (2004). Ocean Optics XVII. Fremantle, Western Australia.

PROFESSIONAL SERVICES

Research assistant

- University of South Carolina, Marine Sciences Program (January 2009 - August 2012)
- Dalhousie University, Department of Oceanography (August 2000 - November 2004)

Reviewer

Journals: Deep-Sea Research II, Geophysical Research Letters, Journal of Geophysical Research-Oceans, Remote Sensing of Environment, Estuarine Coastal and Continental Shelf Research, EGU Biogeosciences, Marine Chemistry, Geochimica et Cosmochimica Acta, Optics Express.

Funding agencies (proposal): NSF

Session Chair

- DISCO Symposium: *The Nitrogen Cycle* (October 2012), Lihue, HI.
- Ocean Optics XVIII: *Recent advances in the study of chromophoric dissolved organic matter*. (October 2006), Montreal, QC, Canada.

Treasurer (2009-2012). Marine Science Graduate Student Organization.

FIELD EXPERIENCE

Research expeditions (Total of ~270 days at sea)

- US R/V Endeavor** (October 2013). Atlantic Coast UNOLS Chief Scientist Training Cruise.
- US R/V Healy** (June/July 2010). Chukchi sea (Arctic Ocean). NASA ICESCAPE project.
- US R/V Cape Hatteras** (March 2010). Northern Gulf of Mexico. *GulfCarbon* project.
- US R/V Hugh Sharp** (November 2009). Northern Gulf of Mexico. *GulfCarbon* project.
- US R/V Cape Hatteras** (July 2009). Northern Gulf of Mexico. *GulfCarbon* project.
- US R/V Cape Hatteras** (April 2009). Northern Gulf of Mexico. *GulfCarbon* project.
- US R/V Cape Hatteras** (January 2009). Northern Gulf of Mexico. *GulfCarbon* project.
- CCGS Amundsen** (July 2008). Beaufort Sea (Arctic Ocean). *Circumpolar Flaw Lead* project.
- US R/V Cape Hatteras** (May 2006). South Atlantic Bight.
- US R/V Walton Smith** (October 2005). South Atlantic Bight.
- US R/V Cape Hatteras** (July 2005). South Atlantic Bight.
- CCGS Martha Black** (July 2003). North Atlantic Ocean. *Canadian-SOLAS*.
- US R/V Endeavor** (July 2002). Middle Atlantic Bight.
- US R/V Pelican** (August 2001). Gulf of Mexico. *SWISS* project.
- US R/V Delphinus** (May 1999). East Florida coast. *Undergraduate honours project*.

Daily field work/sampling

R/V La Mer (2015). Santa Monica Bay, CA.

USGS boat (2014-2015). California Bay-Delta, CA.

UGAMI boat (June 2006, February/July 2007). Sapelo Island, GA.

Small fishing boat (2004). Nova Scotia, Canada.

TEACHING and MENTORING EXPERIENCE

Teaching

Guest lecturer (Spring 2011). *The Living Ocean*. University of South Carolina.

Guest lecturer (Spring 2010). *The Living Ocean*. University of South Carolina.

Teaching assistant (Fall 2008). *Coastal environments*. University of South Carolina.

Teaching assistant (Spring 2008). *The Ocean Environment*. University of South Carolina.

Guest lecturer (Spring 2007). *Biological Oceanography*. University of Georgia.

Mentoring

Chia-Jung Lu (2013). *Visiting Scholar*. University of South Carolina.

Yuan Shen (2009-2012). *Graduate student*. University of South Carolina.

Dandan Duan (2012). *Visiting scholar*. University of South Carolina.

Yulong Zhang (2011). *Visiting scholar*. University of South Carolina.

Elise Kennedy (2010-2012). *Undergraduate student*. University of South Carolina.

Chris Parusa (2009). *Undergraduate student*. University of South Carolina.

PROPOSALS and GRANTS

California SeaGrant: Delta Science Fellows Program (Granted in 2013, \$169,376)

Principal Investigator: Cedric G. Fichot

National Science Foundation: Chemical Oceanography (Granted in 2009)

Co-writer. Principal Investigators: Ronald Benner and William L. Miller

National Aeronautics and Space Administration: ROSES (Granted in 2006)

Co-writer. Principal Investigator: William L. Miller

US Office of Naval Research: Environmental Optics (Granted in 2005)

Co-writer. Principal Investigator: William L. Miller

PEER-REVIEWED PUBLICATIONS

Under review

Shen Y., C. G. Fichot, S. Liang, and R. Benner (submitted). Biological hot spots and the accumulation of marine dissolved organic matter in a highly productive ocean margin. *Limnol. Oceanogr.*

Fichot C. G., R. Benner, K. Kaiser, Y. Shen, R. M. W. Amon, H. Ogawa, and C.-J. Lu (submitted). Predicting dissolved lignin phenol concentrations in the coastal oceans from chromophoric dissolved organic matter (CDOM) absorption coefficients *Front. Mar. Sci.*

Fichot C. G., B. Downing, B. Bergamaschi, L. Windham-Myers, M. Marvin-DiPasquale, D. Thompson, and M. Gierach (submitted). High-resolution remote sensing of water quality in the San Francisco Bay-Delta Estuary. *Environ. Sci. Technol.*

Published, or in press

Yamashita Y., C. G. Fichot, Y. Shen, R. Jaffé, and R. Benner (2015). Linkages among fluorescent dissolved organic matter, dissolved amino acids and lignin-derived phenols in a river-influenced ocean margin. *Front. Mar. Sci.*. doi: 10.3389/fmars.2015.00092

Launois T., S. Belviso, L. Bopp, C. G. Fichot, and P. Peylin (2015). A new model for the global biogeochemical cycle of carbonyl sulfide Part 1: Assessment of direct marine emissions with an oceanic general circulation and biogeochemistry model. *Atmos. Chem. Phys.*, 15, 2295-2312, doi:10.5194/acp-15-2295-2015

Ortega-Retuerta E., C. G. Fichot, K. R. Arrigo, G. L. van Dijken, and F. Joux (2014) Response of marine bacterioplankton to a massive under-ice phytoplankton bloom in the Chukchi Sea (Western Arctic Ocean). *Deep-Sea Res. II*, 105, 74-84, doi:10.1016/j.dsr2.2014.03.015

Fichot C. G. and R. Benner (2014). The fate of terrigenous dissolved organic carbon in a river-influenced ocean margin. *Global Biogeochem. Cycles*. doi:10.1002/2013GB004670

Fichot C. G., S. E. Lohrenz, and R. Benner (2014). Pulsed, cross-shelf export of terrigenous dissolved organic carbon from the Mississippi-Atchafalaya river system. *J. Geophys. Res. Oceans*, 119, doi:10.1002/2013JC009424

Cao F., C. G. Fichot, S. B. Hooker, and W. L. Miller (2014). Improved algorithms for accurate retrieval of UV/Visible diffuse attenuation coefficients in optically complex, inshore waters. *Remote Sens. Environ.*, 144, 11-27, doi:10.1016/j.rse.2014.01.003

Fichot C. G., K. Kaiser, S. B. Hooker, R. M. W. Amon, M. Babin, S. Bélanger, S. A. Walker, and R. Benner (2013). Pan-Arctic distributions of continental runoff in the Arctic Ocean. *Nature: Sci. Rep.*, 3, 1053, doi:10.1038/srep01053
→ Highlighted in *Science*, Editor's Choice, Vol. 339, doi:10.1126/science.339.6119.491-c

Shen Y., C. G. Fichot, and R. Benner (2012). Dissolved organic matter composition and bioavailability reflect ecosystem productivity in the western Arctic Ocean. *Biogeosciences*, 9, 4993-5005, doi:10.5194/bg-9-4993-2012

Fichot C. G. and R. Benner (2012). The spectral slope coefficient of chromophoric dissolved organic matter ($S_{275-295}$) as a tracer of terrigenous dissolved organic carbon in river-influenced ocean margins. *Limnol. Oceanogr.*, 57(5), 1453-1466, doi:10.4319/lo.2012.57.5.1453

Shen Y., C. G. Fichot, and R. Benner (2012). Floodplain influence on dissolved organic matter composition and export from the Mississippi-Atchafalaya River system to the Gulf of Mexico. *Limnol. Oceanogr.*, 57(4), 1149-1160, doi:10.4319/lo.2012.57.4.0000

Belviso S., I. Masotti, A. Tagliabue, L. Bopp, P. Brockmann, C. G. Fichot, and 9 authors (2011). DMS dynamics in the most oligotrophic subtropical zones of the global ocean. *Biogeochemistry*, doi:10.1007/s10533-011-9648-1

Fichot C. G., and R. Benner (2011). A novel method to estimate DOC concentrations from CDOM absorption coefficients in coastal waters. *Geophys. Res. Lett.*, 38, L03610, doi:10.1029/2010GL046152

Fichot C. G., and W. L. Miller (2010). An approach to quantify depth-resolved marine photochemical fluxes using remote sensing: Application to carbon monoxide (CO) photoproduction. *Remote Sens. Environ.*, 114, 1363-1377, doi:10.1016/j.rse.2010.01.019

Zhang Y., H. Xie, C. G. Fichot, G. Chen (2008). Dark production of carbon monoxide (CO) from dissolved organic matter in the St. Lawrence estuarine system: Implication for the global coastal and blue water CO budgets. *J. Geophys. Res. Oceans*, 113, C12020, doi:10.1029/2008JC004811

Fichot C. G., S. Sathyendranath, and W. L. Miller (2008). SeaUV and SeaUV_C: Algorithms for the retrieval of diffuse attenuation coefficients (UV/Visible domain) from ocean color. *Remote Sens. Environ.*, 112(4), 1584-1602, doi:10.1016/j.rse.2007.08.009

INVITED ORAL PRESENTATIONS

AGU Fall Meeting (December 2014)

→ “Assessing the Fate of Terrigenous Dissolved Organic Carbon in River-influenced Ocean Margins.” in Biogeosciences Session: “Variation in Dissolved Organic Matter Composition and Transport as Indicators of Ecological Processes and Watershed Dynamics.”

ASLO Emerging Issue Workshop: New Orleans, LA (February 2013)

→ “Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters”

Dissertations in Chemical Oceanography (DISCO) Symposium (October 2012).

→ “Fate and transformations of terrigenous dissolved organic matter in the ocean”

OTHER CONTRIBUTED PRESENTATIONS and ABSTRACTS

International Meetings

State of the Estuary Conference (September 2015). Oakland, CA, USA. *Poster*.

Internat. Ocean Colour Science Conf. (June 2015). San Francisco, CA, USA. *Poster*.

AGU Fall meeting (December 2014). San Francisco, CA, USA. *2 Orals*.

8th Biennial Bay-Delta Science Conf. (October 2014). Sacramento, CA, USA. *Poster*.

Ocean Optics XXII meeting (October 2014). Portland, ME, USA. *Poster*.

Aquatic Sciences 2013 meeting (February 2013). New Orleans, LA, USA. *Oral*.

Ocean Sciences 2012 meeting (February 2012). Salt Lake City, UT, USA. *Oral+Poster*.

Ocean Optics XX meeting (September 2010). Anchorage, AK, USA. *Oral+Poster*.

Ocean Sciences 2010 meeting (February 2010). Portland, OR, USA. *Poster*.

Ocean Sciences 2008 meeting (February 2008). Orlando, FL, USA. *Oral*.

Ocean Optics XVIII meeting (October 2006). Montreal, QC, Canada. *Poster*.

Ocean Sciences 2006 meeting (February 2006). Honolulu, HI, USA. *Oral*.

Ocean Optics XVII meeting (October 2004). Fremantle, WA, Australia. *Poster*.

Ocean Sciences 2004 meeting (February 2004). Honolulu, HI, USA. *Poster*.

Ocean Optics XVI meeting (November 2002). Santa Fe, NM, USA. *Poster*.

Others

Graduate student day 2012 (March 2012). University of South Carolina.

School of Earth and Ocean Sciences (February 2012). University of South Carolina.

School of Earth and Ocean Sciences (February 2011). University of South Carolina.

GulfCarbon project workshop (September 2010). University of Georgia

Departmental Seminar (April 2007). University of Georgia

WORKSHOP PARTICIPATION

Coastal and Inland Water Science A-Team Study (JPL, September 2015)

HyspIRI Symposium (Goddard Space Flight Center, June 2015)

HyspIRI Science and Applications Workshop (Caltech, October 2014)

Western States Water Council Remote Sensing Workshop (JPL, August 2014)

Keck Institute for Space Studies Workshop: Autonomous Science to Forge a Breakthrough in Quantifying the Global Ocean Carbon Budget (Caltech, January 2014)

Gulf of Mexico Coastal Carbon Synthesis Workshop (St-Petersburg, FL, March 2013)

ASLO Emerging Issue Workshop: Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters (New Orleans, LA, February 2013)

GulfCarbon Workshop (Athens, GA, September 2010)

AFFILIATIONS

American Geophysical Union (AGU)

Association for the Scientists of Limnology and Oceanography (ASLO)

The Oceanography Society (TOS)